

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of recording information to an optical recording medium to which information is recorded by projecting a pulse-modulated laser beam onto the optical recording medium and forming on the optical recording medium a plurality of recording marks selected from a group consisting of several types of recording marks each with different lengths, wherein the method of recording information to an optical recording medium comprises:

setting recording powers of a top pulse and/or a last pulse of a laser beam used for forming at least one recording mark contained within ~~from~~ said group to a second recording power lower than a first recording power which is a recording power of an intermediate pulse(s) between the top pulse and the last pulse; ~~and~~

setting a pulse width of a cooling pulse of the laser beam used for forming at least one recording mark contained within said group to be wider than ~~the a~~ pulse width of each of the top pulse, intermediate pulse(s) and last pulse; and

setting bottom powers of downward pulses to be substantially same, thereby recording information in the optical recording medium.

2. (Currently Amended) ~~A~~ The method of recording information to ~~an~~ the optical recording medium in accordance with Claim 1, wherein the recording powers of the top pulse and the last pulse are set at ~~the a~~ same level.

3. (Currently Amended) ~~A~~ The method of recording information to ~~an~~ the optical recording medium in accordance with Claim 1, wherein the first recording power ($Pw1$) and the second recording power ($Pw2$) are set so that $Pw2/Pw1$ is smaller than 0.9.

4. (Currently Amended) ~~A~~The method of recording information to ~~an~~the optical recording medium in accordance with Claim 2, wherein the first recording power (P_{w1}) and the second recording power (P_{w2}) are set so that P_{w2}/P_{w1} is smaller than 0.9.

5-8. (Canceled)

9. (Currently Amended) ~~A~~The method of recording information to ~~an~~the optical recording medium in accordance with Claim 1, wherein the pulse width of the cooling pulse is set to be equal to or wider than 1.0 T, wherein T is one clock cycle.

10. (Currently Amended) ~~A~~The method of recording information to ~~an~~the optical recording medium in accordance with Claim 1, wherein a length of a shortest signal between neighboring recording marks is equal to or shorter than 30 ns.

11. (Currently Amended) ~~A~~The method of recording information to ~~an~~the optical recording medium in accordance with Claim ~~40~~1, wherein ~~the~~a length of ~~the~~a shortest signal between neighboring recording marks is equal to or shorter than 20 ns.

12. (Currently Amended) An optical recording medium comprising at least a recording layer to which information is recorded by projecting a pulse-modulated laser beam thereonto and forming thereon a plurality of recording marks selected from a group ~~consisting of~~ several types of recording marks each with different lengths, wherein: the optical recording medium ~~comprises~~includes information required to set recording powers of a top pulse and/or a last pulse of a laser beam used for forming at least one recording mark ~~contained within~~from said group to a second recording power lower than a first recording power which is a recording power of an intermediate pulse(s) between the top pulse and the last pulse and record the information therein, ~~and~~ set a pulse width of a cooling pulse of the laser beam used for forming at least one recording mark contained within said group to be wider than ~~the~~a pulse width of each of the top

pulse, intermediate pulse(s) and last pulse and set bottom powers of downward pulses to be substantially same.

13. (Currently Amended) ~~An~~The optical recording medium in accordance with Claim 12, which further comprises information required to set the recording powers of the top pulse and the last pulse at ~~the~~a same level and record the information therein.

14. (Currently Amended) ~~An~~The optical recording medium in accordance with Claim 12, which further comprises information required to set the first recording power ($Pw1$) and the second recording power ($Pw2$) so that $Pw2/Pw1$ is smaller than 0.9.

15. (Currently Amended) ~~An~~The optical recording medium in accordance with Claim 13, which further comprises information required to set the first recording power ($Pw1$) and the second recording power ($Pw2$) so that $Pw2/Pw1$ is smaller than 0.9.

16. (Currently Amended) An information recording and reproducing apparatus that records information by projecting a pulse-modulated laser beam onto an optical recording medium and forming on the optical recording medium a plurality of recording marks selected from a group ~~consisting~~ of several types of recording marks each with different lengths, thereby recording information in the optical recording medium wherein: the information recording and reproducing apparatus comprises at least optical means for projecting the laser beam onto the optical recording medium and laser drive means for supplying a laser drive signal for controlling the laser beam, the laser drive means being adapted to supply a laser drive signal to set recording powers of a top pulse and/or a last pulse of a laser beam used for forming at least one recording mark ~~contained within~~from said group to a second recording power lower than a first recording power which is a recording power of an intermediate pulse(s) between the top pulse and the last pulse, ~~and~~ a laser drive signal to set a pulse width of a cooling pulse of the laser beam used for forming at least one recording mark contained within said group to be wider

than ~~the~~ a pulse width of each of the top pulse, intermediate pulse(s) and last pulse and a laser drive signal to set bottom powers of downward pulses to be substantially same.

17. (Currently Amended I) ~~An~~ The information recording and reproducing apparatus in accordance with Claim 16, wherein the recording powers of the top pulse and the last pulse are set at ~~the~~ a same level.

18. (Currently Amended) ~~An~~ The information recording and reproducing apparatus in accordance with Claim 16, wherein the first recording power (P_{w1}) and the second recording power (P_{w2}) are set so that P_{w2}/P_{w1} is smaller than 0.9.

19. (Currently Amended) ~~An~~ The information recording and reproducing apparatus in accordance with Claim 17, wherein the first recording power (P_{w1}) and the second recording power (P_{w2}) are set so that P_{w2}/P_{w1} is smaller than 0.9.

~~to an optical recording medium which information is recorded by projecting a pulse-modulated laser beam onto the optical recording medium and forming on the optical recording medium a plurality of recording marks selected from a group consisting of several types of recording marks each with different lengths, wherein[-] the method of recording information to an optical recording medium comprises:~~

20. (Currently Amended) A method, ~~of setting the forming of recording marks in which an individual mark is set to be formed by the method comprising:~~

setting ~~a~~ at least one recording power of ~~an~~ at least one intermediate pulse to a first power level;

setting recording powers of a top pulse and a last pulse of a laser beam used for forming at least one recording mark to a second ~~recording-power level~~ level lower than the first ~~recording-power level~~ level which is ~~a~~ the at least one recording power of the at least one intermediate pulse;

setting a ~~bottom-most power level for the laser pulse while the mark is being recorded, the~~ at least one bottom power of downward pulses positioned between the top pulse and the at least one intermediate pulse and between the at least one intermediate pulse and the last pulse ~~being to be~~ lower than the first power level and the second power level and ~~also being lower than a median power and being positioned between the top pulse and an intermediate pulse and between any intermediate pulse and the last pulse~~ to be same as each other;

setting a pulse width of a cooling pulse of the laser beam used for forming at least one recording mark ~~contained within said group~~ to be wider than ~~the~~ a pulse width of any one of the top pulse, an intermediate pulse and last pulse and having ~~the~~ a same power level as ~~the~~ a bottom most power level.

21. (Currently Amended) The method according to claim 20, further including:

setting the pulse width of the cooling pulse to be greater than or equal to ~~than 3~~ three times wider than any of said at least one intermediate pulse of ~~the~~ a pulse train of said laser beam for forming the recording mark.